September 20, 1962

Dr. Luca Cavalli-Sforza
18, Via Fatebenesorelle
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Dear Luca:

Would you care to computize a key-word index to
these SIBs? Put a man in loop to mark key words?
Later we may discuss better grouping techniques.

Sincerely,

Encl: SIB Nos. 3 & 4
       Notes on Preliminary test on Burroughs 220

Cavalli

Idea on random number generator.

Count intervals between radioactive disintegrations. These are distributed around
an a poorly estimated expectation. But compare each interval counted with the average
value of all previous intervals in the set. These should accurately form random choices
of $> = 1$, $< = 0$ for construction of sets of random bits. (These do not, of course, have
to be generated in real time while the computer is handling the main program.)

What if t $\not>$, $\not<$, but $= t_{av}$? I suppose reject that number.

Is electronic noise random enough to use this directly as source of pulses
without bothering about actual radio counter?

The idea of the average is to use the actual measured distribution of past events
to set the threshold at best current estimate for $p= 1/2$. This may introduce some
systematic errors in the early generation of the average, but these should smoothe
out as the number of terms used to compute the average mounts. In fact one should
set the threshold not at the mean but the median time interval. (?A?? (The median is
also an average, so my discussion above is not technically incorrect)

Use long-lived isotope and so ignore gradual decay of counts,

How is chemo-, fluoro-, thera- poiesis?

P.S. Can you print your own computerized library scan on a sheet seet up for mark-
sensing? The a reader could make a check list from the full output index, and feed
this directly back to the computer to prepare a selective bibliography. (And by a few
successive approximations and a little logic to catch duplications even prepare a
subject-organized index). This will be fun to talk about in November; meanwhile,
perhaps worthwhile to investigate the possibilities of a mark-sensing attachment to
read the an edited output sheets.
    P.S. What language does your computer understand? Do you have a compiler? (I have
been learning BALGOL).